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ABSTRACT

Maryland's School Improvement Through Instructional Process (SITIP) program involves all 24 local education agencies in implementing one or more of the following research-based instructional models: Active Teaching, Mastery Learning, Student Team Learning, and Teaching Variables. Following a review of background information, state education agency initiatives and assistance activities are described, an evaluative overview is presented, and local impact is discussed. The state initiatives consisted of planning, training activities, and technical assistance to local education agencies. Planning was flexible, interactive, ongoing, and based on an open systems approach, resulting in a high degree of local participation and commitment to the program at nearly all sites. State-sponsored training activities included an assistant superintendent's retreat, an instructional leadership conference, and followup workshops. Technical assistance was provided by an eight-person team that provided statewide leadership while encouraging local ownership and that developed networks and teaching/learning opportunities for local teams to share successes and build expertise. Impacts of the SITIP program on student achievement, student attitudes, teacher's knowledge of models, school environment, and administrators and central office staffs are reported, along with concerns and recommendations by local SITIP participants. (TE)

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Introduction

This paper describes the impact of a statewide instructional improvement program on local education agencies (LEAs), and discusses coordination of evaluation procedures. Following a review of background information, state education agency (SEA) initiatives and assistance activities are described, an evaluation overview is presented, and local impact is discussed.

Background Information

Maryland's School Improvement Through Instructional Process (SITIP) program encourages application of research on planned change to implement one or more of four researched-based instructional models. The Maryland State Department of Education (MSDE) supports local implementation by providing funds, training, and technical assistance, and by conducting evaluation with reports developed so that data-based decisions can be made.* The instructional models used in SITIP are: Active Teaching, Mastery Learning, Student Team Learning, and Teaching Variables. All 24 local education agencies (LEAs) in the state voluntarily implemented one or more of the models.

SITIP is a multi-year program consisting of interactive activities which are outlined below.

1. Preparation (open systems planning): Identify needs and potential solutions. Draft a design.

2. Initial Commitment: Review plan with LEA superintendents. Get commitment for local team attendance at awareness conferences.

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* Three major evaluation reports will have been written by the time direct involvement by MSDE comes to an end. The first focused on implementation for the period December 1980 to June 1982. See: Roberts, et al., Instructional improvement in Maryland: A study of research in practice, 1982. ERIC #: Full report, ED222486; executive summary, ED223553. The last, which will cover the 1983-84 school year, will focus on institutionalization.

3. Awareness Conferences: Have each of the instructional improvement models presented by its developer at awareness conferences attended by LEA teams, MSDE staff, and interested others. Describe design and nature of (voluntary team) involvement.

4. Local Proposals/Plans: Help cross-hierarchical local teams draft proposals to implement one or more of the models.

5. Implementation: Help LEAs implement selected models using their own strategies but involving representatives of all role groups.

6. Dissemination: Encourage use of the models in many schools, and share information about successes between LEAs.

7. Technical Assistance: Assign MSDE staff (across divisions) to assist LEAs in planning, implementation, and dissemination; to conduct follow-ups; and to facilitate networking. Build capacity; do not create dependency.

8. Follow-up Training: Conduct an intensive three-day training session on each model for prospective implementers (teachers, school administrators, central office staff). Conduct annual or bi-annual follow-up training sessions (using participatory planning) to maintain quality implementation. Assist LEAs (central office staff) in planning/conducting turnkey training.

9. Assessment of Progress and Impact (cyclic): Have a "third party evaluator" collect and analyze data systematically and use (feedback) information to make improvements and publicize successes.

The activities outlined above began in 1980. All 24 LEAs were represented at orientation conferences. Nineteen LEAs submitted proposals for implementation through June 1983. For the 1982-84 school years, five "new" LEAs decided to participate.

The Instructional Models

Each of the instructional models is described here.

- Active Teaching (AT) is a system of direct instruction developed by Thomas Good and Douglas Grouws at the University of Missouri. Originally designed for the teaching of mathematics, AT consists of the following components: (1) prelesson development -- concepts and skills from the previous night's homework are reviewed, homework is checked and collected, and students engage in mental exercises; (2) lesson development -- prerequisite skills and concepts are briefly reviewed, new concepts are introduced via teacher explanation and demonstration, and student comprehension is assessed

through controlled practice; (3) seatwork -- uninterrupted, individual, successful practice is provided in order to increase proficiency in the skills and concepts taught; (4) homework -- homework is assigned related to the concepts developed that day; and (5) review/maintenance -- weekly and end-of-unit reviews help to maintain skills and concepts taught.

- Mastery Learning (ML), developed by Benjamin Bloom and James Block, combines curriculum alignment and diagnostic/prescriptive instruction with a philosophy that all students can succeed. Essential components are: (1) developing a scope and sequence of objectives, broken down into prerequisite and component skills; (2) providing appropriate instruction aligned with the objectives to be mastered; (3) testing the student's progress in mastering the objectives through the use of a formative evaluation measure ("no fault" test); (4) providing students who have not achieved mastery with additional corrective work in the deficient areas specified by the formative tests, and providing students who have achieved mastery with enrichment activities to reinforce and supplement learning; (5) testing final mastery of the objectives with a summative evaluation measure; and (6) recording student progress in terms of individual mastery of specific objectives. "Mastery" is usually defined as 80% of the students demonstrating success on at least 80% of the objectives in a given unit of instruction.

- Student Team Learning (STL) techniques use peer tutoring and team competition to facilitate student learning. Student Team-Achievement Divisions (STAD) and Teams-Games-Tournaments (TGT) were developed by Robert Slavin and staff at the Johns Hopkins University. Jigsaw was started at the University of California at Santa Cruz. The key factors of STL are peer interaction, cooperation, and competition. STAD is basically team learning; TGT is team learning plus competition by ability level; Jigsaw is team learning of specific elements of a program, with regrouping for peer teaching across elements.

- Teaching Variables (TV) was developed by David Helms and staff at Research for Better Schools (RBS). Two variables found to be strongly related to effectiveness of instruction and student achievement were identified: "content" and "time." The "content" variable encompasses two factors: (1) assessment of prior learning, and (2) alignment of curriculum objectives and classroom instruction to the testing instrument. The "time" variable improvement cycle involves: (1) measuring student engaged time (SET) via classroom observation, (2) comparing SET and opportunity for improvement, (3) reviewing and selecting research-based improvement strategies, (4) implementing strategies, and (5) using additional classroom observations to evaluate the effectiveness of the strategies in improving SET.

State Initiatives and Assistance

Maryland State Department of Education (MSDE) staff engaged in planning, designed and conducted a variety of training activities, and provided technical assistance (TA) to LEAs.

Planning

Planning was flexible, interactive, on-going, and based on an open-systems approach. Existing organizational structures were used or new ones developed to facilitate communication and involve various interest groups in MSDE-initiated plans. Within MSDE and between MSDE and the LEAs, efforts were made to coordinate activities and to strengthen or integrate existing programs with SITIP (or SITIP knowledge bases on instruction and planned change). Planning was timely, made good use of resources and available expertise, and invited local participation by role groups and in such ways as to result in high commitment to the program and real (not lip-service) implementation in almost all sites. Major outcomes of planning activities within MSDE (other than the implementation of the plans) included: (1) a general knowledge of SITIP by most MSDE staff; (2) sufficient commitment or interest by senior and middle management to be willing to explore elements or knowledge bases of SITIP, and to continue (and expand) cooperative support for technical assistance; (3) application of SITIP-related information, strategies, or processes in various existing programs; and (4) increased knowledge and skills in instructional improvement and planned change by members of the TA team (which informally filtered back into other program areas).

Training

MSDE-sponsored training activities related to SITIP during the 1982-83 year included: (1) an Assistant Superintendents' Retreat, (2) an Instructional Leadership Conference, and (3) Follow-up Workshops on each model. Each of those activities led to site-specific activities at some LEAs. Training included information and activities to reinforce content and process, took into account participant needs and interests, involved local teams and outside consultants as presenters, and was provided on the understanding that MSDE would provide assistance for LEAs wishing to follow through ideas with a larger number of local educators. The various kinds of training events reinforced each other, and helped to establish a common knowledge base for all hierarchical levels. Participant evaluation of events, the subsequent local requests for on-site presentations and assistance, and the scope and fidelity of implementation, provide strong evidence of the value to participants of the SITIP-related training provided by MSDE.

Technical Assistance

Technical assistance (TA) to LEAs was provided by an eight-person team under the leadership of the Assistant Deputy Superintendent. The team carried out planning and training activities and also worked in dyads to provide model-specific assistance to local implementers, spending a total of 263 workdays on SITIP. Accomplishments of the TA team included: providing leadership for a statewide school improvement program while at the same time encouraging local ownership; maintaining communication within MSDE and among LEAs; developing networks and teaching/learning opportunities for local teams to share successes and build expertise; developing expertise among themselves and applying it not only in SITIP but also in other areas; and increasing awareness of effective SITIP practices to researchers and educators outside

Maryland. Impact relating specifically to assistance included: increased trust and openness in communication between LEAs and MSDE; increased effort by some LEAs to carry out their plans; better linkage or a clearer common knowledge among hierarchical levels within LEAs; increased involvement by central office staff in some LEAs; changes in planning, decision-making, and/or communication (e.g., more involvement of teachers) in some LEAs.

Evaluation Overview

This section summarizes the questions addressed by the study for the 1982-83 school year, responsibilities and data sources, measures and methods, and analysis and reporting.

Questions Addressed

The study addressed four areas: impact, implementation, dissemination, and technical assistance.

1. What is the nature and extent of <u>impact</u>:

    1.1 On educators, in terms of:
        1.1.1 increased knowledge
        1.1.2 change in practice or policy
        1.1.3 attitude to specific topics and to teaching/learning in general

    1.2 On students, in terms of:
        1.2.1 change in achievement levels
        1.2.2 change in behavior (e.g., attendance, disruption, homework completion)
        1.2.3 change in attitude (e.g., locus of control, self-concept, group participation, willingness to work)

2. What is the nature and extent of <u>implementation</u>:

    2.1 Within a local system
    2.2 Across LEAs implementing a given model

3. What is the nature and extent of <u>dissemination</u>:

    3.1 Within a local system
    3.2 Between LEAs
    3.3 Outside Maryland

4. What is the nature and extent of technical assistance provided by MSDE in terms of:

   4.1 Implementation -- planning, training, support
   4.2 Dissemination -- planning, training, knowledge base/information
   4.3 Evaluation -- planning/design, techniques, measures, data analysis and reporting

Responsibilities and Data Sources

While RBS had primary responsibility for the SITIP evaluation, three factors influenced the decision to involve MSDE TAs and LEA coordinators more directly in evaluation activities: (1) student achievement data relating to impact questions could best be collected and summarized by LEAs; (2) if similar measures and methods were used by all LEAs, results could more easily be compared across the state; and (3) some LEA and MSDE staff wanted to improve their expertise in evaluation by becoming more involved.

For these reasons, RBS worked with MSDE TAs to develop an overall design and written guidelines for LEA involvement. The guidelines summarized the design, listed role group and individual responsibilities, included a check-list planning sheet indicating mandates (e.g., choice of various given ways to measure student achievement), and described measures and methods. RBS and MSDE staff reviewed the guidelines with LEA teams and each LEA completed a planning sheet agreeing to a coordinated evaluation effort.

In general, RBS was responsible for design, development, analysis, and reporting. MSDE TAs were responsible for coordination, distribution and collection of materials (e.g., questionnaires), and assistance to LEAs in following the guidelines (e.g., how to score and summarize student attitude surveys). LEA coordinators (key contacts) carried out tasks similar to those of TAs, but each in his/her own district. LEA evaluators worked with coordinators to collect, score, and summarize data, particularly that

collected from students. (Local responsibility for these tasks not only increased local involvement and awareness of program impact, but also ensured that concerns relating to "protection of human subjects" were dealt with appropriately.)

Information--materials, interviews, survey responses--was provided by: (1) the seven MSDE TAs and the SEA assistant deputy superintendent; (2) LEA central office staff directly involved in SITIP (usually between one and three people for each of 24 LEAs); (3) school-based administrators (up to 10 per LEA); and (4) teachers (up to 20 per LEA). Also large numbers of participants of state-sponsored training events provided information either directly (responding to questionnaires) or indirectly (observed by RBS).

Students also completed cognitive and affective measures.* Usable data from cognitive measures (e.g., California Achievement Test) were summarized by nine LEAs (nine projects) and submitted to RBS. Usable data from affective measures (e.g., Learning Environment Inventory) were summarized by 13 LEAs (14 projects) and submitted to RBS. Two of the 13 LEAs used their own questionnaires to measure student attitudes.

Measures and Methods of Data Collection

Six general methods of data collection were used: observations, interviews, questionnaires, document analyses, and measures of student achievement and attitude.

Observations. RBS staff observed four SITIP "follow-up" workshops, two statewide conferences, and all monthly technical assistance (TA) meetings, and

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* While MSDE expected all "veteran" LEAs (19) to submit data summaries, several did not do so, for a variety of reasons.

also participated in fall and spring site visits at four LEAs. About 400 pages of field notes were taken, and reports on training events were developed and submitted to SEA TAs within 10 days of a given event.

Interviews. The SEA TAs, LEA key contacts, and various local educators were interviewed to clarify or verify perceptions or reports, and (for the TAs) to review roles, successes, and challenges.

Questionnaires. Three questionnaires were used: (1) the key contact questionnaire was completed by all 24 LEAs to provide "pre" and "post" baseline data; (2) workshop evaluation forms were completed by participants (approximately 650) of the various SITIP training events; and (3) a general survey was completed by 350 local educators (teachers, school-based administrators, and central office staff), with items relating to program implementation, impact, dissemination, and the nature and extent of interactive support.

Document Analyses. All SITIP related materials developed by the SEA were reviewed as well as LEA materials used at presentations and samples of classroom materials.

Student Assessment. While the General Survey included questions relating to perceived program impact on students in terms of attitude, behavior, and achievement, data were also collected directly from students. The SEA expected all 19 "veteran" LEAs (24 projects) to collect data and send summaries to RBS. All LEAs received guidelines on student assessment, attended workshop sessions discussing alternatives, and were encouraged to seek assistance if necessary from SEA TAs.

Analysis and Reporting

Local participation in data collection from students was not as high as was expected. Eight projects reported usable data based on teacher-made criterion referenced tests; three projects reported data from standardized

tests (of which two also provided criterion data); fourteen projects reported data on student attitudes, seven using a brief questionnaire, and five using inventories (My Class Inventory -- elementary, or Learning Environment Inventory -- secondary) and two using their own measures. Of the 24 LEAs (29 projects) 11 submitted no usable student data. Of those 11, ten were "veteran" sites that had agreed to collect, summarize, and submit data in accordance with alternatives and guidelines suggested. Reasons why data submitted were not usable included: schedules of data collection and implementation did not "fit"; "pre" data only were submitted; or means reported summarized results of unrelated scales. Reasons why data were not submitted at all included: none collected because staff forgot or had more pressing responsibilities; lack of resources to develop summary tables of results; or local staff felt that publicizing results would cause inter-school competition or friction. Those LEAs that had no usable student data to help determine the "objective value" of a project, relied more on the perceptions of staff directly involved (the "subjective value") and, to some extent, on comments and comparisons made by "outsiders" such as SEA TAs, RBS staff, or staff involved in similar projects in other districts. In some cases staff perceptions were based on results of teacher made tests (weekly quizzes or unit tests) or assigned grades.

Data collected were analyzed by project, by LEA, by model, and by role group (teachers, school administrators, etc.). Interim reports were submitted to the SEA TAs, and annual (model and project specific) reports reviewed with LEA teams to help in data-based decision-making for program improvement.

Local Implementation and Impact

This section focuses on local implementation of the models: Active Teaching (AT), Mastery Learning (ML), Student Team Learning (STL), and Teaching Variables (TV), examining the following areas: planning, scope and intensity of implementation, time spent and responsibilities shared, impact, and participant concerns.

Planning

Objectives addressed by LEAs can be divided into four categories: student impact (objectives 1, 2, and 9); training (objectives 3 and 4); teacher impact (objectives 5, 7, and 8); and curriculum alignment (objective 6). (See Table 1.) The level of achievement varied across the four categories, with the highest level in curriculum alignment followed by training, teacher impact, and student impact. These results are strongly influenced by the amount of time and effort that educators spent on the objectives. For instance, educators have been working on curriculum alignment for Project Basic since 1979 and so have a sound foundation on which to build. Local achievement of training objectives was influenced by the fact that provision of information and training for SITIP began in 1980 and has been strongly reinforced by both MSDE and LEA activities since that time. Changes in teachers' behavior have arisen from that training, and achievement of objectives in this category was strongly influenced by the interactive support provided by LEA team members. The three objectives relating to improvement in students' achievement and attitudes can only be achieved after the other categories of objectives have been accomplished. These findings reinforce those of other school improvement studies which have found that major changes affecting students take from three to five years to bring about.

Table 1

Status of Objectives: All Models, June 1983

Local Objectives	Number of Projects Addressing Objectives					Achievement Status**		
	Total N=29	AT N=7	ML N=7	STL* N=8	TV N=7	% of Projects 1	2	3
1. Improve student achievement (basic skills).	26	6	7	6	7	23	50	27
2. Improve student achievement (other subjects).	22	3	6	7	6	45	45	10
3. Inform local educators about model.	27	6	7	7	7	11	33	56
4. Train educators about model.	26	5	7	8	6	4	61	35
5. Improve teachers' classroom competence.	29	-	7	8	7	3	59	38
6. Ensure match of instruction, curriculum, and tests(s).	18	1	7	4	6	0	39	61
7. Help teachers become better organized.	27	6	7	7	7	4	66	30
8. Improve time-on-task.	25	6	7	5	7	8	56	36
9. Improve students' involvement in learning (motivation).	23	6	5	7	5	13	48	39

* Prince George's County did not submit data on status of objectives in June 1983.

** Status: 1 = Hoped for
2 = Partly achieved
3 = Achieved

Scope and Intensity of Implementation.

During the 1982-83 school year, all 24 school districts were involved in SITIP, 20 implementing a single model, three implementing two models, and one implementing three models. (See Table 2.)

There were six AT projects, seven ML projects, nine STL projects, six TV projects, and one combined AT-TV project for a total of 29 SITIP projects across the state. Over 986 teachers and 34,955 students in 139 elementary and secondary schools were involved in SITIP. Of the 139 schools involved, 65% were elementary, 34% were secondary, and 1% were "other" (i.e., K-12, vocational-technical). Fifty-two percent of the schools, 58% of the teachers, and 69% of the students in SITIP were using the AT model. More than 11% of Maryland's schools were involved in SITIP (AT -- 6%, ML -- 1%, STL -- 3%, TV -- 1%). (See Table 3.)

LEAs selected one of four implementation strategies: (1) district-wide, (2) pilot-district, (3) capacity building, and (4) lighthouse school. The lighthouse school strategy was the most popular (16 projects), followed by pilot district and capacity building each used for five projects, and district-wide used for three projects.

There was a relationship among the implementation strategy used, the nature and extent of central office staff involvement, and the extent to which the model(s) used were perceived by central office staff to fit LEA priorities. For instance, the district-wide strategy required central coordination and considerable central office staff involvement, and was used where the model fit closely with a local priority. The pilot-district strategy was not quite as demanding and (with the exception of two LEAs) was used where the model fit local priorities.* The lighthouse school strategy, implemented as

* In both cases (of exception) the model as implemented did not support local priorities: expansion was curtailed and central office support was low.

Table 2

Scope and Intensity By County: All Models, June 1983

County	Topics	Strategy	#of schools	Type	#of teachers	#of students
Allegany	ML	LS	1	O	22	300
Anne Arundel	ML	LS	1	H	3	150
Baltimore City	ML	PD	5	J/M, H	150	3,332
Baltimore County	ML STL	LS PD	3 2	E E, J/M	13 9	325 225
Calvert	STL TV	LS LS	3 3	E, J/M J/M	10 23	300 540
Caroline	AT	LS	2	E	5	122
Carroll	ML	LS	1	J/M	2	161
Cecil	AT	PD	17	E, J/M	40	2,000
Charles	STL	LS	10±	E, J/M	17*	650±*
Dorchester	STL	PD	7	E	8	177
Frederick	TV	PD	2	J/M, H	15	600
Garrett	AT	LS	2	H	11	443
Harford	AT	DW	34	E, J/M	446	19,177
Howard	ML	LS	1	J/M	9	260
Kent	TV	DW	4	E	32	676
Montgomery	AT STL TV	LS LS LS	1 1 1	E J/M J/M	9 10 7	170 480 300
Prince George's	STL	CB	No data			
Queen Anne's	STL	CB	1	H	23	900
St. Mary's	AT	CB	5	E, J/M, H	27	1195**
Somerset	TV	LS	1	E	8	217
Talbot	TV	LS	1	O	4	80
Washington	STL	CB	14	E, J/M, H	20	600
Wicomico	AT	DW	12	E	43	1100
Worcester	ML STL	LS CB	1 4	E E, J/M	4 16+	75 400

*Matthew Henson Middle School only
**Includes some duplicates

Topics: AT=Active Teaching
ML=Mastery Learning
STL=Student Team Learning
TV=Teaching Variables

Strategy: LS=Lighthouse school
PD=Pilot district
DW=District-wide
CB=Capacity building

Type: E=Elementary
J/M=Junior high/middle
H=High school
O=Other

Table 3

Scope and Intensity Summary: All Models, June 1983

Models	Projects*		Schools**		Teachers		Students	
	#	%	#	%	#	%	#	%
Active Teaching	7	24	72 E 52 S 20	52	572	58	24,037	69
Mastery Learning	7	24	13 E 4 S 8 O 1	9	203	21	4,603	13
Student Team Learning	8	28	42 E 28 S 14	30	113	11	3,732	11
Teaching Variables	7	24	12 E 6 S 5 O 1	9	98	10	2,583	7
Total	29	100	139 E 90 S 47 O 2	100	986	100	34,955	100

* Although Prince George's County implemented STL in about 10 schools, no "hard" data were available at the end of the school year. Therefore, this LEA is not included in these results.

** One school is implementing two projects -- AT and TV. It is counted once under TV.

Schools: E = Elementary
S = Secondary
O = Other

designed at all sites, required a fit between the model and the school's priorities (not necessarily the district's priorities), and central office administrative support. Expansion occurred beyond the lighthouse site only when: (1) there was impact on student achievement (objective value); (2) teachers liked the model (subjective value); and (3) central office staff provided additional support (usually to make the necessary arrangements for staff in other schools to attend training). The capacity building strategy was centrally coordinated in two LEAs and school-based at three sites, with a fit between the model and LEA priorities at only one of the latter. The greatest weakness of this strategy was that once teachers were trained, in most cases they had high autonomy and low interactive support (reflecting low involvement of central office staff), and the fidelity and frequency of implementation was not as great as for other strategies.

These findings suggest that the closer a model was to existing LEA priorities the more likely it was to draw central office involvement, and subsequently lead to strong and widespread classroom use. Conversely, when the model did not fit a district priority, it could be well implemented in a school where it fit that school's priorities but was not likely to be widely used, and its survival depended more on the individual teachers involved. Implementation strategies initially selected by LEAs reflected the amount of energy and commitment of local educators which was based on the fit -- as they perceived it -- between the model and their priorities. If, subsequently, it became apparent that the fit was greater or smaller than at first perceived, the strategy was changed.

Fidelity relates to the extent to which teachers implemented the models as designed. AT had the greatest fidelity, with 72% of the teachers implementing all six components, as compared to ML where 23% of the teachers

carried out all ten components, and STL where 33% of the teachers carried out the five required components. For AT, no single component was addressed by less than 88% of the teachers, as compared to ML (52%) and STL (76%). For TV, the majority of the educators (62%) implemented the time variable. Most of the teachers (72%) had been observed by principals and vice-principals, and 45% reported strategizing during staff meetings.

Time Spent and Responsibilities Shared

This section summarizes the amount of time spent on SITIP activities for all four models by each role group during the 1982-83 school year.

The average number of months' involvement by teachers for three models (AT, ML, TV) was eight months, with no one involved for less than five months. AT implementation was continuous for the specified number of months. With the exception of three ML sites, teachers did not use ML and STL continuously during those months. TV teachers were usually observed at the beginning and end of the time, applying improvement strategies in the interim, if appropriate. During the period that teachers were directly involved, the average time spent during a given week ranged from 21% (STL) to 39% (AT). For three models (AT, ML, STL) elementary teachers spent less time (15% to 23%) than did secondary teachers (23% to 51%). This reflected the fact that elementary teachers used a model for only one or two curricular subjects, while any secondary teachers involved used the model for his/her subject area specialty with a relatively large number of classes. For TV, secondary teachers spent 19% of their time and elementary teachers spent 33% of their time teaching subjects for which "time" observations were conducted or the "content" variable addressed. This reflected the higher credibility which the TV data base had among elementary teachers.

In order of investment of classroom time, models were: AT, ML, TV, STL. Investment varied from one site to another, influenced strongly by administrative decisions and the amount of development work completed in the first year. Factors working against high investment of classroom time included: (1) need for materials (STL, ML); (2) need for preparation time (ML, STL); (3) pressure to cover the curriculum in a given amount of time (ML, STL); (4) relative suitability of a model to the curriculum (STL); (5) relative suitability of a model to a grade level (TV, secondary); and (6) negative experiences in early implementation which were not totally resolved by local administrators (some sites for AT and ML, perceived most strongly for TV). Factors facilitating high investment included: (1) availability of materials (ML, STL); (2) low complexity of the model (AT); (3) suitability of the model to a curriculum and grade (AT); (4) successful application experienced by teachers early in the project (AT, STL); and (5) successful application facilitated by local administrative support (all models in some sites, but perceived most strongly for STL).

The average amount of time invested by central office staff and school-based administrators ranged from nine or ten days for AT and STL, to 23 days for ML. Individual administrators spent as few as two days on SITIP to an almost full-time commitment. With the exception of TV, central office staff spent almost twice as much time as school-based administrators. In all cases, combined time of administrators was invested least in materials identification and/or development. For three models (AT, ML, STL) most combined time was spent on supporting school implementation and administration. The other three areas of activity -- inservice, dissemination, evaluation -- took relatively little time. Since appropriate materials were essential for ML and STL, and since administrators invested so little in this activity, classroom use was

reduced unless teachers already had materials or were given release time for development. Given teachers' concerns and needs relating to TV, greater investment in support (rather than administration) was desirable at some sites.

Interactive support included both logistical and affective support: information exchange; training (both traditional inservice and one-on-one coaching); provision of materials and other resources; arrangements for teacher release time; assistance in development of quality materials, tests, record-keeping systems, etc.; acknowledgement and publication of success; and supportive use of feedback to encourage improvement. Support was rated for all role groups by the three local role groups (on a five point scale, 1=very poor, 5=excellent), and results are presented for all four models in Table 4. While ratings of developers' support are relatively unimportant at this stage of implementation, the somewhat low ratings for central office support (below average -- 2.98 -- for TV, to 3.82 for STL) are of concern where projects are not school-based, and where the LEA expects SITIP implementation beyond a single school.

Impact

This section discusses impact for all models on school systems, central office staff, schools, school administrators, teachers, and students.

As can be seen in Table 5, the most common impact at the district level was the commitment and sharing among educators (reported for AT and ML) which was encouraged by the SITIP design. Also, for two models, policies were put into practice to facilitate implementation and encourage institutionalization.

Knowledge of a new teaching or observation strategy was noted by central office staff for all models, plus acknowledgement of AT's influence on improving organization for instruction. The strongest area of impact at the

Table 4

Perceptions of Support Received: All Models, 1982-83

Models/Respondents \ Support Groups	N	Teachers	School Administrators	Central Office Staff	MSDE	Developers
Active Teaching	112	3.79	3.83	3.79	3.61	3.24
Mastery Learning	75	4.11	3.95	3.81	3.64	3.21
Student Team Learning	86	4.12	4.12	3.82	3.94	3.72
Teaching Variables	61	3.74	3.64	2.98	3.29	2.90
Totals	334	3.94	3.90	3.65	3.90	3.29

Mean ratings range from a low of 1.00 (very poor) to a high of 5.00 (excellent).

Table 5

Impact of Implementation on Administration
Schools, and Districts: All Models, 1982-83*

Impact**	Role Groups and Models															
	School Systems				Central Office Staff				Schools				School Administrators			
	AT	ML	STL	TV	AT	ML	STL	TV	AT	ML	STL	TV	AT	ML	STL	TV
Knowledge of a new teaching strategy			2		2	3	3				3	4	3	5	3	
Knowledge of time-on-task																2
Knowledge of effective observation/ supervision method/criteria								5					3			3
Knowledge of learning (theory, practice)						2										
Belief in traditional teaching													2			
Commitment/sharing among educators	2	4								5	2	3				
Continuity/consistency across classes									4							
Interest/enthusiasm of students/teachers (e.g., in subject area)									2		4					
Better management, organization or instruction					2							3	2			
Appreciation for teachers, recognition of success											3		2	2		
Support (e.g., arranging common planning time) for teachers										4						
Closer monitoring of teaching									2							
Policy to release teachers to train others or coordinate project		2														
Policy to implement for a given subject or grades	3															

* Reported in number of LEAs:
Active Teaching N=7, Mastery Learning N=7, Student Team Learning N=8, Teaching Variables N=6.

** Impact areas reported only when stated by two or more LEAs for a given model.

school level was sharing among educators, with continuity and consistency across classes. Interest, appreciation, and support were valued, as was closer monitoring and better organization for instruction. Principals and other school-based administrators for all models valued new teaching or observation strategies, gained an appreciation for teachers' capability (AT, ML), and strengthened their belief in traditional teaching (AT). The impact of involvement in SITIP, in terms of teachers' understanding the models and improving their teaching ability, is summarized in Table 6, with the percent of teachers noted for each area of impact for each model. The relatively low perceived impact of TV may have been influenced by the amount of training, by the number of teachers who were found to have satisfactory engagement rates (time-on-task) and therefore saw no need to change, and/or by the interactions between observers and teachers.

Table 6

Percent of Teachers Impacted by Involvement: All Models, 1982-83

Impact \ Models	AT	ML	STL	TV
teachers understanding model	72	73	80	64
teachers improving teaching ability	66	64	50	28
teachers seeing no change in teaching ability	13	16	27	36

Each of the three local role groups rated impact on teachers in terms of enjoyment, increased knowledge, and increased skills (on a five point scale where 5.00 = strongly agree). Responses are summarized in Table 7. Mean

Table 7

Instructional Impact as Perceived by
Survey Respondents: All Models, 1982-83

Impact on Instruction	N=	Models AT 122	ML 76	STL 89	TV 63	Total 350
Instructional Value						
Works in classroom.		4.47	4.35	4.42	4.00	4.35
Is worth the work it takes.		4.29	3.85	4.18	3.73	4.07
Is a worthwhile teaching approach.		4.38	4.28	4.43	3.79	4.26
Impact on Teachers						
Teachers enjoy it.		4.02	3.77	4.17	3.56	3.92
Teachers have increased knowledge.		4.08	4.08	4.14	3.60	4.01
Teachers have increased skills.		4.05	4.08	4.06	3.51	3.96
Impact on Students						
Students enjoy it.		3.88	4.09	4.37	3.52	3.99
Students are less disruptive.		3.88	3.16	3.65	3.11	3.62
Students' achievement has increased.		3.59	3.76	3.76	3.08	3.58
Students are learning more.		3.61	3.67	3.60	2.81	3.48
Students' general behavior is better.		3.73	3.09	3.57	3.08	3.43
Time						
Teachers spend more time preparing students.		3.09	4.01	3.93	2.69	3.43
Teachers cover curriculum in less time.		3.13	2.51	2.56	2.79	2.79

Mean ratings range from 1.00 (strongly disagree) to 5.00 (strongly agree).

AT=Active Teaching, ML=Mastery Learning; STL=Student Team Learning; TV=Teaching Variables

ratings in all cases indicated that impact on teachers in all areas did occur to some extent, with greatest certainty among local educators for STL and least for TV.

More specific kinds of impact on teachers, in terms of increased knowledge and skills and strengthened attitudes, are summarized in Table 8. For each kind of impact for each model, the number of LEAs where that impact was found is presented. Since most LEAs hoped that teachers would improve skills relating to instruction, impact in that category is particularly important. Since each model emphasizes particular activities, comparisons are not always relevant. However, the first three skill areas listed are addressed by all four models, and results indicate that a large number of LEAs found that teachers made improvements in teaching/observing, classroom management, and assessing and addressing student needs. For three models (AT, ML, STL), these results indicate that in 50% or more of the LEAs, impact on teachers reflected the objectives or claims of the model(s) implemented. For TV, appropriate impact was weaker (e.g., knowledge of time-on-task in 33% of LEAs, skill in effective use of time in 33% of LEAs), which may be related to the fact that 46.8% of teachers did not need to make changes to improve time-on-task, or may have been influenced by the strategizing for improvement (only 44.7% of teachers were involved in team strategizing). In general, impact on teachers was positive and clearly related to the model(s) implemented.

Impact on <u>students</u> as perceived by local educators is presented in Tables 7 and 9. For each kind of impact for each model, the number of LEAs where that impact was found is presented. Across all models, the strongest areas of impact perceived by local educators were: improved student attitudes toward learning and school and about their ability to learn; increased student achievement as indicated by test scores, and mastery and retention of facts

Table 8

Impact of Implementation on Teachers: All Models, 1982-83

Impact: teachers have...	Models			
	AT	ML	STL	TV
N* =	7	7	8	6
Increased knowledge				
-of components or procedures of effective teaching	7	5		2
-of time-on-task				2
-of curriculum alignment and program		4		1
-of research and learning theory		3		2
-about teaching and learning through staff development/observation			3	
Improved skills				
-in a new teaching/observation technique	5	7	7	5
-in classroom management/organization/planning	6	7	6	3
-in assessing and addressing student needs	6	3	4	3
-in specific components of effective teaching	3	4		
-in effective use of time	7			2
-in use of peer tutoring			1	
-in working with students (e.g., motivation)			4	
-in curriculum development		1		
-in instruction	5			
Strengthened attitudes/perceptions				
-about teaching	3	6	7	4
-of teachers' confidence or self-image	3	2		
-of the value of traditional teaching	2			
-of the value of specific components of effective teaching	1	4		
-that the larger group must be emphasized	3			
-of what students can accomplish		4		
-of how well students can work together			5	
-of the importance of keeping students on task				2
-that teachers must teach every day	2			

* N is the number of LEAs implementing a given model.

AT=Active Teaching; ML=Mastery Learning; STL=Student Team Learning; TV=Teaching Variables

Table 9

Impact of Implementation on Students: All Models, 1982-83

Impact on Students	Models			
N* =	AT 7	ML 7	STL 9	TV 6
Improved attitudes or awareness				
-about their learning ability	3	5	3	
-about their learning responsibilities	2	2		
-about learning/school	7	4	8	2
-of their strengths and weaknesses		3		
-about tests		2		
-about classroom behavior/time-on-task				4
-of teacher interest				1
-of value of being organized				1
Increased achievement				
-in test scores	5	5	4	3
-in grades	1	1	4	
-in general		1	2	
-in mastery/retention of facts and skills	4	4	3	
-in problem solving and conceptual understanding	2	1		
-especially for lower achievers		1	2	
Benefitted from better instruction which provides				
-a structured, consistent format	4	5		
-a clear understanding of teacher expectations	4	2		1
-a greater variety of activities			3	1
-effective learning activities	3			
-a more complete instructional program			1	1
-better use of time/more materials covered	4			
-opportunity for independent work	1			
-opportunity to relearn (after "no fault" test)		3		
-opportunity to advance			1	
-special benefits for slower students	1			
-more individualized instruction	1			
-peer tutoring/working in groups			3	
-large group instruction	1			
-more organization				1
-more attention to academic content				1
-fewer gaps in skill development		1		
-competition			1	
-less pressure		1		
-recognition of success			1	

* N is the number of LEAs implementing a given model.

AT=Active Teaching; ML=Mastery Learning; STL=Student Team Learning; TV=Teaching Variables.

and skills; and benefits derived from instruction in a structured, consistent format with a clear understanding of teacher expectations. In general, educators offered statements indicating that ML, AT, and STL had somewhat more impact on students than TV.

Student attitude data were summarized by projects using either a brief questionnaire or a longer inventory (Learning Environment Inventory for grades 5-12, My Class Inventory for younger students).* The questionnaire was used for three models by seven LEAs (Allegany, Baltimore County, Carroll, Cecil, Dorchester, St. Mary's, Worcester). Results were positive for all items at all sites. Students knew the difference between SITIP and regular instruction. They found the lessons relatively easy, enjoyed and understood them, considered that in comparison to regular lessons they were better, and students learned more and got better grades. Overall, this last criterion (better grades) and the first (ease of lessons) drew the least certain responses from students, with the total mean on those items pulled down by responses from older students (grades 4-12) -- possibly because they are more discriminating than younger students. In general, mean scores for STL were higher than for the other two models.

Results of the inventories (Anne Arundel, Baltimore City, Caroline, Charles, Worcester) indicate that the means for each project and across the three projects were better than national norms for secondary students on four

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* The Learning Environment Inventory (LEI) measures 15 dimensions, eight of which were relevant for assessing impact on student attitudes. Four dimensions are included in the My Class Inventory (MCI). Each is defined: Competitiveness--Students compete to see who can do the best work; Satisfaction--Students enjoy their class work; Difficulty--The work of the class is difficult; Friction--There are tensions among certain groups of students that tend to interfere with class activities; Disorganization--The class is disorganized; Apathy--Failure of the class would mean little to individual members; Favoritism--Certain students are favored more than the rest; Environment--The books and equipment students need or want are easily available to them in the classroom.

dimensions: satisfaction, difficulty, apathy, and environment. There was room for improvement in relation to friction for all sites, for favoritism at all secondary sites, and disorganization at two secondary sites. There were no significant differences between models, regardless of the fact that STL is designed to reduce friction and avoid favoritism.

Cognitive achievement data from standardized mathematics tests were reported by four projects -- one in AT and three in ML. In all cases, gains were greater than normally expected, with most significant improvement found for low or middle achieving students. Eight projects reported data based on teacher-made criterion-referenced tests (AT=2, ML=4, STL=2). In most cases, SITIP students did better than students in "regular" classes, with gains made most consistently by below average students. Data supported claims for ML that at least 80% of the students achieved mastery (established at 80% or more of the course objectives mastered).

These results support developers' claims for AT, ML, and STL. However, direct cause-and-effect conclusions should be made with caution, attending to the nature and extent of implementation relating to a given set of results.

Participant Concerns and Recommendations*

Concerns were reported by participants of all projects, and were categorized as being related to the model(s) or to the general process of implementation. (See Table 10.) Most model-specific concerns related to management -- the need for time and materials for effective implementation.

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* In the 1982 report, concerns were analyzed using the Stages of Concern (SoC, developed by the Center for Teacher Effectiveness at the University of Texas). In general terms, that same framework is used here. Stages are roughly developmental (Awareness, Information, Personal, Management, Consequences, Collaboration, Refocusing) as an individual or group learns about an innovation, uses it, and fits it into existing activities. Concerns in earlier stages need to be satisfactorily addressed before participants can be expected to move to another phase of activity.

Table 10

Participant Concerns: All Models, 1982-83

Concerns		Models			
		AT N=7	ML N=7	STL N=8	TV N=6
Model Concerns					
Time	-- allocations too rigid	4			
	-- requires too much record-keeping/ paperwork		1	2	3
	-- requires too much student testing		1		
	-- requires too much in general		7	3	
	-- requires too much preparation/scoring			4	
Materials	-- need enrichment activities		2		
	-- need materials that fit LEA curriculum			1	
Students	-- holds back talented Ss	1	5	2	
	-- remedial Ss go off task			1	
	-- weak Ss depend on strong Ss			1	
	-- absentees hard to handle			1	
	-- grouping is difficult		1		
Discipline	-- less teacher control, more noise			2	
Curriculum	-- does not fit all subjects/grades	4	2		
	-- coverage is reduced		1		
Teachers	-- creativity is inhibited	6			
	-- observation creates fear, pressure				2
	-- model more useful for new teachers				1
Assessment	-- achievement is difficult to measure			1	
	-- point system (bumping) is not popular			2	
	-- checking should not be done by Ss	2			
Design	-- lack of research base				1
	-- complex, difficult to implement				2
	-- coding categories are judgmental				2
Implementation Concerns					
Insufficient time			2		2
Insufficient central office support					1
Poor coordination (model, materials, management)		3			
People and resources not used to meet project needs		5			
Inflexible budget process			1		
Unclear evaluation guidelines			1		
No monitoring of observers					1
Leaving class to teacher substitutes					1
Poor communication -- teachers don't know why model is used					1
Poor attitude/teacher apathy					1
Teachers not engaging students in learning		1			

N=number of LEAs implementing a given model.
AT=Active Teaching; ML=Mastery Learning; STL=Student Team Learning; TV=Teaching Variables.

Many concerns related to consequences -- the impact on particular kinds of students, on curriculum, and on discipline and the assessment of that impact. Teacher concerns are also consequential, with some personal overtones. Concerns about the design and some of the assessment concerns were related to refocusing -- a dissatisfaction with the model as implemented and a desire to do something different. General implementation concerns were reported for three models (there were none for STL). All of them related to management, with some personal or consequential overtones. These results are what might be expected given the age(s) of the projects.

Recommendations were made by participants of all projects, and were categorized into six general areas: learning, teachers, classroom use, implementation process, interactive support, and expansion/revision. (See Table 11.) Learning recommendations related to the SoC "information" stage, and reflected a cycling of sophistication and appreciation for on-going training and assistance: participants have learned and want to continue learning -- sometimes in a particular way or in a particular area of expertise. Recommendations for teachers related to the "personal" SoC stage and indicate that in some cases there is fear, resentment, or confusion that needs to be overcome (ML, STL, TV). Classroom use and implementation process recommendations related to two levels of management, and indicate that local implementers have become sufficiently familiar with the models to identify (and want to overcome) barriers to successful use. The AT recommendation for situational adaptation suggests a need to clarify understanding of the model (how it is explained, and how it is implemented). There were fewer management recommendations for STL than for other models, which is somewhat surprising given the number of concerns about time and students. Recommendations classified as "management" were influenced by interest in consequences. The "collaboration"

Table 11

Participant Recommendations: All Models, 1982-83

	Recommendations	Models AT N=7	ML N=7	STL N=8	TV N=6
Learning	-- provide training and follow-up assistance	4		2	2
	-- provide research updates on school improvement, teacher effectiveness	1	1		
	-- provide research results before implementation			1	
	-- encourage teachers to increase knowledge & skills		3	1	
	-- provide more specific instructional improvement ideas				1
	-- allocate resources for classroom observation			1	
Teachers	-- reduce burden on Ts			2	
	-- have only voluntary participation (it's not for every T)		2	2	1
	-- help Ts see value of model				1
	-- compensate Ts for after school activities		2		
Classroom Use	-- allow situational adaption	3			
	-- maintain fidelity (and monitor)	2			
	-- allocate/adjust use of time	3			1
	-- provide materials	1		1	
	-- sequence units more carefully		1		
	-- have ability grouping/smaller classes	2	1		
	-- develop record-keeping system (computerized)		1		
	-- develop strategies to deal with absentees	1			
Implementation Process	-- allocate time (development, paperwork, preparation	1	5	1	2
	-- assign new leadership				1
	-- do not add model on top of LEA priority				1
	-- do not begin in first few days of semester				1
	-- use earlier in the year			1	
	-- evaluate effectiveness	1	2		
Interactive Support	-- increase funding	1	2	1	1
	-- increase central office support	1			1
	-- increase MSDE/central office cooperation to help Ts solve problems	1			
	-- increase MSDE assistance		1	1	
	-- encourage more networking among and within LEAs		2		2
	-- provide or develop materials			1	
	-- involve more Ts in curriculum development		2		
Expansion Revision	-- drop the program				3
	-- increase involvement schools/grades/subjects	6	6	6	3
	-- try another model	2			
	-- use every day	1			
	-- use for the full year	3			
	-- use another part/technique of model				2

N=number of LEAs implementing a given model.
AT=Active Teaching; ML=Mastery Learning; STL=Student Team Learning; TV=Teaching Variables.

stage related to what others are doing -- interactive support -- and most recommendations in this group indicate that school-based staff are not ready to take full responsibility for implementation (and perhaps should not be expected to do so). Recommendations about expansion or revision related to the "refocusing" stage, and mostly indicate that local educators value the models enough to want expansion (although opinions are divided for TV between expansion and termination and reflect concerns about the design and the way some teachers in some LEAs react to it).

If a project is to succeed, concerns and recommendations should be addressed by MSDE TAs and LEA teams. For AT, the most critical issue is local perceptions of the fit of the model to specific grades, subjects, or students (as grouped). For ML, the most critical issue is cost-effectiveness in terms of time allocated for unit and test development, and the subsequent record-keeping, in relation to the perceived value of the model. For STL, the most critical issue is cost-effectiveness in terms of teachers' investment in relation to impact (including discipline) on various kinds of students. For TV, the most critical issue is the perceptions -- fear, apathy, resentment (primarily of teachers) -- about local implementation decisions and about the model design. While those issues suggest negative impact in some sites, it should be noted that they are not pervasive and do not out-weigh the positive impacts reported earlier.

Conclusions

While processes of implementation based on the research on planned change were recommended for all models in all LEAs, and TAs encouraged local educators to attend to such principles as participatory decision-making, two-way communication, training and support, and appropriate investment of time and energy, those processes of implementation and principles were not always

applied.* When they were applied, implementation went sufficiently smoothly for energy to move gradually from establishing structures, relationships, and expectations toward actual classroom use. When there were arbitrary administrative decisions, top-down or incomplete communication, low support by central office staff, and insufficient time allocated for materials development or group planning by teachers, implementation problems occurred.

At the local level, these principles or practices were generally referred to as interactive support, and, depending on the nature and extent to which they were applied, had positive impact or created barriers to success. (See Table 12.)

Impact was made on student achievement by three models (AT, ML, STL), with the strongest evidence of success in mathematics and reading/language arts for AT and ML. Positive results were most apparent when either of those models was used consistently over a period of time for a given subject and grade.

Impact was made on student attitudes to some extent for all models. Data summarized by 12 projects (AT, ML, STL) indicated that SITIP students enjoyed the lessons, did not find them difficult, and wanted to succeed. Friction among students, and their perception of favoritism and disorganization needed to be addressed at some sites. While teachers believed that for STL students self-esteem and willingness to work with others increased, student data for STL indicated no differences for that model in comparison to AT or ML.

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* In some cases, the responsibility for the low level of application was shared with the assigned TA. In other cases, the TA's efforts were disregarded by local staff.

Table 12

Barriers and Facilitators to Successful Implementation

Barriers	Facilitators
Heavy reliance on training (ML, STL) Insufficient resources for training (STL) No follow-up assistance (STL)	Training and assistance responsive to Ts' expressed needs (AT, ML, STL, TV)
Rationed resources, broad development (ML)	T time & skill to develop materials (AT, ML, STL) Resources allocated for development
T adapt model (STL) T perceive no credibility of model (TV)	Fidelity understood, advocated, & acknowledged by SA & CO (AT, ML, STL)
CO maintain administrative control, but expect work to be done by school staff without building ownership (AT, ML)	CO demonstrate interest in project success (AT, ML, STL, TV) and acknowledge T efforts (AT, STL) CO act to overcome problems (AT)
Plans overly ambitious (STL) Plans not followed by project leaders (STL) Purpose not clarified, mutually understood (TV)	Shared planning, purpose setting, decision-making (ML, TV) Networking encouraged (ML,TV) SA fit model to school priority (TV)
Ts perceive their efforts are devalued (ML)	Ts believe their opinions and efforts count (ML,TV) Ts believe project is designed for improvement (TV) Ts value recommendations of observers (TV) SA emphasizes professional development (TV)
Single energizer with low influence (AT) Conflicting messages (CO, SA, some MSDE) (ML, STL)	

AT=Active Teaching; ML=Mastery Learning; STL=Student Team Learning; TV=Teaching Variables.
CO=central office staff; SA=school administrators; T=teachers.

Impact was made on teachers' knowledge for all models through training. Skills in a new teaching/observation technique increased through classroom practice and coaching. Positive attitudes about teaching were strengthened as teachers experienced success.

Impact was made on a school (the faculty and how instructional matters were dealt with) through commitment and sharing among teachers (ML, STL, TV), and provision of support (ML) and recognition of success (STL) by school administrators (usually the principal). Staff interest in teaching/learning increased (AT, STL); there was more continuity across classes (AT); better management of instruction (TV); and closer monitoring of teaching (AT).

Impact was made on school administrators' knowledge for all models through training, and they improved instructional management (AT), strengthened their belief in traditional teaching (AT), and were more appreciative of teachers' capability (AT, ML) as implementation occurred in their schools.

Impact was made on central office staff's knowledge for all models through training, and, for AT, they improved instructional management as they became involved in implementation.

At the system level, there was knowledge gain (STL), cross-hierarchical sharing and commitment (AT, ML), and policies enacted to release teachers to train others or coordinate activities (ML), and to implement the model district-wide for a given subject or grade level (AT).

As stated earlier, the implementation strategy used influenced impact (with capacity-building being the least effective). Another strong influence was the relationship between a model and local priorities (as perceived by

local educators). Probably the strongest influence on successful implementation was interactive support: while teachers can and do teach alone in their own classrooms, they do much better when their efforts and successes are acknowledged and they are part of a cross-hierarchical team working toward instructional improvement which benefits students.

Summary and Conclusions

Application of the research on planned change facilitated implementation of models of instructional improvement. The SITIP design encouraged collaboration, increased communication using a common knowledge base about school and classroom effectiveness, and helped LEAs establish cross-hierarchical teams with the purpose of improving instruction. Unless the principles of planned change were applied, the model adopted had little chance of success.

The models themselves were perceived by local educators as having both subjective and objective value. Teachers' positive opinions had just as much influence as standardized test data in determining program maintenance or expansion. Teachers' negative opinions or concerns had a little influence in determining maintenance or expansion and did influence the relative impact of the project.

Active Teaching and Mastery Learning, when implemented with fidelity for a complete course, had a positive impact on student achievement, and helped teachers to organize instruction effectively. The models were valued more by teachers when used for structured academic curricula than for more open-ended subject areas. Mastery Learning required considerable administrative support. Both models were more successful when administrators acknowledge teachers' efforts.

Student Team Learning was popular with students and teachers and had a positive impact on achievement in some cases. However, it was not used consistently, and so cause-and-effect claims cannot be verified. Maintenance and expansion usually occurred when teachers saw the value of the model, and appropriate materials were available.

Teaching Variables was used as a professional development process (and was then more likely to be valued by participants), or as part of a supervision process (and was then more likely to be viewed with suspicion by teachers). Little evidence was provided to indicate impact on student achievement, but there were some reports of teachers improving their management of instruction.

Key staff in all LEAs, in 11% of Maryland's schools, in colleges of education, and at MSDE increased their understanding of recent research on planned change and school and classroom effectiveness. Nearly 1000 teachers modified their instructional techniques, and most of them believed that the results are worthwhile. The general attitude of all role groups involved in SITIP was positive, with appreciation for the opportunities for professional growth, and for the benefits to students receiving improved instruction.

During the 1983-84 school year, local implementation will continue to be supported by MSDE, with attention to participant concerns and recommendations and to the results reported here. SITIP advocates hope that LEAs will make purposeful data-based decisions -- either to terminate or to institutionalize, preferably the latter with local commitment to build on the state initiative.